Northern Forest & Range Experiment

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VOLUME DISTRIBUTION BY LOG POSITION FOR SOUTHEAST ALASKA TREES

James T. Bones

Volume distribution based on curved values of measurements from 193 trees was previously reported in Alaska Forest Research Center Technical Note 10[1/]. Volumes were computed from the stump to a merchantable top equaling 50 percent of d.i.b. (diameter inside bark) at top of the first log or a minimum of 8 inches.

Current National Forest inventory standards specify a merchantable top equaling 40 percent of d.b.h. (diameter breast height) but not less than 6 inches. Stump height is equal to d.b.h., but with a minimum of 24 and maximum of 54 inches specified.

Measurements of 1,018 trees from 21 widely dispersed logging operations on the Tongass National Forest were taken to current standards. These trees formed a sound basis for updating and strengthening the existing tables. Only the values for the 9- and 10-log tree height values of Table 1 and the 4-1/2- and 5-log tree height values of Table 2 needed to be balanced with a freehand curve. The tables are applicable to Sitka spruce, western hemlock, and western redcedar of southeast Alaska.

1/ Zach, L. W. Distribution of volume in southeast Alaska trees. Alaska Forest Res. Cen. Tech. Note No. 10, 1 p. 1951.

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Table 1.--Percentage distribution of tree volume in 16-foot logs[1/]

Tree height (logs)	Log position										Basis (No. of trees)
	1	2	3	4	5	6	7	8	9	10	
1	100										
2	69	31									20
3	52	33	15								80
4	39	30	20	11							291
5	33	26	20	13	8						328
6	27	23	19	15	10	6					207
7	24	20	17	14	11	8	6				78
8	21	18	16	13	11	9	7	5			10
9	19	16	14	12	11	9	8	6	5		3
10	17	15	13	12	11	9	8	6	5	4	1

Table 2.--Percentage distribution of tree volume in 32-foot logs[1/]

Tree height (logs)	Log position										Basis (No. of trees)
	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5		
1	100										
1 1/2	82	18									80
2	74		26								291
2 1/2	60		31	9							328
3	52		33		15						207
3 1/2	45		31		18	6					78
4	40		29		21		10				10
4 1/2	35		27		20		10	8			3
5	32		27		20		13		8		1

1/ Based on gross Scribner tree volume between stump and merchantable top specified in current National Forest inventory. Stump height equaling d.b.h., except never less than 24 inches or greater than 54 inches. Merchantable top equaling 40 percent of d.b.h. or a minimum of 6 inches.

Gross International 1/4-inch volume distribution is essentially the same with the exception of 2-log tree heights of Table 1. Use 67 and 33 for this height class.

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